

27. BIRD AND BAT COLLISIONS WITH AIRCRAFT IN INDIA AT NIGHT

The BNHS has been receiving data on bird strike incidents as well as bird remains since 1966 from aerodromes all over India for identification of species involved. 67 species of birds and three species of bats are known to have struck aircraft in India (Satheesan *et al.* 1992). Of the total 420 confirmed bird and bat strikes to aviation in India 10.5% occurred during night time. An analysis of nocturnal bird-strike incidents based on bird remnants received by BNHS from military and civil aerodromes in India is given here.

Out of 44 nocturnal bird-strike incidents recorded (Table 1), the maximum were caused by the redwattled lapwing (25%) followed by stone curlew and bats (18.2% each). Of the 20 species mentioned in Table 1 the spotted dove is a diurnal bird and

hence the incident might have occurred while the roosting bird was disturbed by the sound of the low-flying aircraft. The cattle egret, also a diurnal bird, was struck down around 1930 hours in the month of September, probably when the bird was flying late to roost.

Mid-air collision was caused by migratory birds in two incidents at Halwara (Punjab) where the common teal was involved and in one incident near Goa involving a Kashmir roller (Satheesan 1990). Ducks and waders are known to feed at night. During migration or while commuting to and from distant nocturnal feeding sites ducks and waders are likely to collide with aircraft.

Insects gathered around strong lights in an aerodrome area, especially on the runways, and

TABLE 1
NOCTURNAL BIRD AND BAT-AIRCRAFT-STRIKE INCIDENTS BETWEEN 1966 AND DECEMBER 1990 (N = 44)

Bird/Bat species	Weight in g	No. of incidents	Locality	Bird/Bat species	Weight in g	No. of incidents	Locality
Birds				Sooty tern	200	1	Pune
Cattle egret <i>Bubulcus ibis</i>	450	1	Ambala	<i>Sterna fuscata</i>			
Night heron <i>Nycticorax nycticorax</i>	275	1	Dundigal	Spotted dove	125	1	Hakimpet
Bittern <i>Botaurus stellaris</i>	900	1	Adampur	<i>Streptopelia chinensis</i>			
Common teal <i>Anas crecca</i>	300	2	Halwara	Spotted owl	125	1	Dabolim (Goa)
Black partridge <i>Francolinus francolinus</i>	400	1	Ambala	<i>Athene brama</i>			
Rain quail <i>Coturnix coturnix</i>	75	2	Hakimpet, Pune	Barn owl <i>Tyto alba</i>	300	1	Jodhpur
Stone curlew <i>Burhinus oedicnemus</i>	380	8	Bareilly, Bhuj, Jodhpur, Gorakhpur, Bombay, Gwalior, Sirsa & Bidar	European nightjar	75-	1	Bhuj
Small Indian pratincole <i>Glareola lactea</i>	40	1	Pathankot	<i>Caprimulgus europaeus</i>	100		
Painted snipe	125	1	Bombay	Indian little nightjar	46	1	Bareilly
<i>Rostratula bengalensis</i>				<i>Caprimulgus asiaticus</i>			
Redwattled lapwing	190	11	Bareilly, Chandigarh (2), Kalaikunda, Dabolim(3), Bhatinda(3), Halwara	Kashmir roller	170	1	Goa (over sea)
<i>Vanellus indicus</i>				<i>Coracias garrulus</i>			
				Bats			
				Pipistrelle bat	20	2	Halwara, Jodhpur
				<i>Pipistrellus mimus</i>			
				Tomb bat	25	1	Pune
				<i>Taphozous</i> sp.			
				Giant fruit bat	600	2	Baroda/ Bombay
				<i>Pteropus giganteus</i>			Dabolim (Goa)
				Unidentified microchiropteran bat	Not known	2	Hakimpet
				Unidentified bat	not known	1	Dabolim (Goa)

taxiways including floodlights attract birds directly and indirectly (Ali and Grubh 1981, 1984). It is most likely that predominantly ground birds like stone curlew, redwattled lapwing, painted snipe, rain quail, black partridge and night heron frequent the runway for insects or insectivorous vertebrates that are attracted towards lights in the aerodrome area. Owls, nightjars and bats are nocturnal in their habits and are known to hunt for prey during night time in aerodrome areas and hence are hazardous to aircraft mainly at night.

Out of the 22 nocturnal bird and bat strikes to aircraft where altitude of incident is known, 50% oc-

curred at ground level and the rest at different altitudes, the highest recorded being 2424 m. Nocturnal bird and bat strikes have caused significant damage to aircraft engines (ten times), windshield (twice) and even to nose cone, landing gear and landing lights (once each).

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28. RECORDS OF THE GHARIAL *GAVIALIS GANGETICUS* (GMELIN) FROM THE DHAKUAKHANA AREA OF ASSAM

(With a text-figure)

Dhakuakhana is a sub-division of Lakhimpur district in the far eastern part of Assam. The sub-division is entirely on the flood-plain zone of the Brahmaputra and the major tributary, the Subansiri. A large number of smaller rivers and channels criss-cross the sub-division, making it a rich area for riverine fauna (Fig. 1). During a stay of about one and a half years (November 1989 to April 1991) I collected data on the occurrence of the gharial *Gavialis gangeticus*, some of which are very recent. These are presented chronologically.

1950: A major earthquake shook the whole of north-east India. The Subansiri river was blocked for four days by a heavy landslide upstream, resulting in drying up of many channels downstream. The villagers of Oyengia killed one gharial and also two mugger *Crocodylus palustris* on the river bed.

1953-54: One seen in the Rotua river. It was feeding on a large borali fish (*Wallago attu*). The local villagers saw the gharial tossing up the fish while eating.

1960: Gharials not uncommon in the Korha

river near Samporamukh.

1974: A boy was attacked and injured by a gharial on the Chela river near Baghchuk. Up to 1973, sighting of 3-4 of these reptiles basking on the banks of the Chela river was not uncommon.

1975 (mid 1970s): One large gharial suddenly appeared in the Charikaria river near Dhakuakhana proper, creating panic among the bathers and fishermen. It was shot by a local hunter. Its length was about 6 m

1982-83: A gharial reportedly seen by the Mishing tribal people near Matmora on the Brahmaputra river.

1986: (a) One seen near Tekeliphuta in the Kherkotia suti (channel) just near its junction with the Brahmaputra. (b) One villager was injured when a gharial attacked him in the Chela river near Chelajan Kachari village.

1986-87: One seen in the Korha river near its confluence with the Charikaria river. The locals who saw it chased it downstream through the Chela river to the Kherkotia suti. Ultimately the Mishing tribals